Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Red Oak Creek and Tributary to Red Oak Creek

Waterbody Segment at a Glance:

County:	Gasconade
Nearby Cities:	Owensville
Length of impairment:	
Red Oak Creek	2 miles
Trib to Red Oak Creek	1 mile
Pollutant:	Volatile Suspended Solids (VSS)
Source:	Owensville Wastewater Treatment Plant (WWTP)

State map showing location of watershed

Proposed for addition to 2002 303(d) List

TMDL Priority Ranking: N/A

Description of the Problem

Beneficial uses of Red Oak Creek and Tributary to Red Oak Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption

Use that is impaired

- Protection of Warm Water Aquatic Life

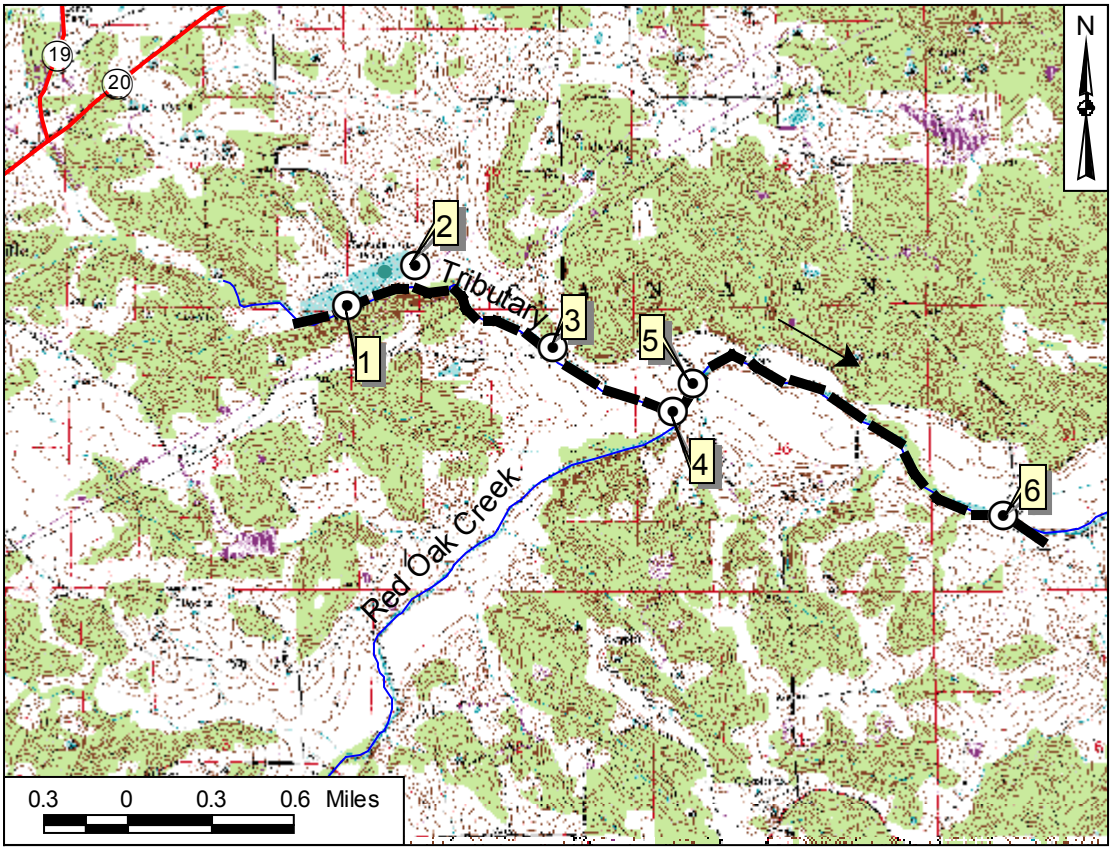
Standards that apply

- Standards for Volatile Suspended Solids (VSS) may be found in the general criteria section of the Missouri Water Quality Standards, 10 CSR 20-7.031(3)(A) and (C), where it states:
  - Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
  - Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.

The Owensville wastewater lagoon was upgraded in 1992, but water quality surveys by the Department of Natural Resources in 1995 and 1997 found the receiving stream had turbid (cloudy), green water due to the high concentrations of suspended algae discharged by the wastewater lagoon. The stream also showed signs of periodic low dissolved oxygen events and anaerobic (without oxygen) conditions in the streambed. Volatile Suspended Solids (VSS) refer to organic particles that are suspended in water, like the algae in these two waterbodies, or those that settle out, like sewage sludge. Suspended algae are a problem in addition to being unsightly and smelly. They block sunlight, thus

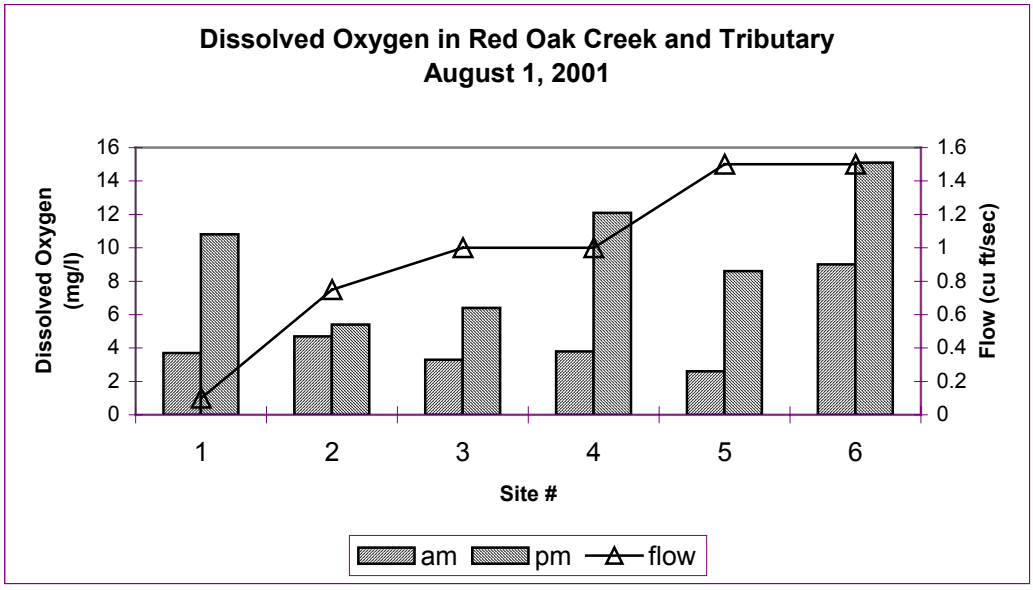
reducing dissolved oxygen in the water. Many aquatic organisms require high levels of oxygen to survive. Furthermore, when these particles settle onto the streambed they smother natural substrates (materials in the streambed), aquatic invertebrate animals (like water insects and crayfish) and fish eggs. In 1997, excessive benthic (attached to the bottom) algal growth was also noted. These impacts are judged to be severe enough to exceed Missouri's water quality standards general criteria for objectionable floating material, color and for conditions harmful to aquatic life in three miles of stream. A map of the area and a graph summarizing the data may be found below. More intensive water quality sampling is scheduled for the summer of 2002.

Red Oak Creek and Tributary in Gasconade County, Missouri, with Sampling Sites



Site Index

1 – Tributary to Red Oak Creek 0.3 mile upstream of Owensville Lagoon outfall
2 – Owensville Lagoon Effluent
3 – Tributary to Red Oak Creek 0.6 mile downstream of Owensville Lagoon outfall
4 – Tributary to Red Oak Creek 1.1 miles downstream of Owensville Lagoon outfall
5 – Red Oak Creek 0.1 mile downstream of confluence with Tributary
6 – Red Oak Creek 1.5 miles downstream of confluence with Tributary



Source: Missouri Department of Natural Resources

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